


EXHIBIT E

Infringement of Claim 1 of U.S. Patent Number 7,254,266 by Deep Lens

CLAIM LANGUAGE	Infringing Application
<p>1. In a computer system, a method for automating the expert quantification of image data using a product algorithm comprising:</p>	<div data-bbox="577 422 1627 519"> <p>Advanced Deep Convolutional Neural Network Approaches for Digital Pathology <u>Image Analysis: a comprehensive evaluation with different use cases</u> <small>Md Zahangir Alom, Theus Aspiras, Tarek M. Taha, Vijayan K. Asari, Dave Billiter, and TJ Bowen</small></p> </div> <div data-bbox="1648 422 1848 519">  </div> <p>Source: DPA Poster: “Advanced Deep Convolutional Neural Network Approaches for Digital Pathology Image Analysis: a comprehensive evaluation with different use cases.”</p> <p>Deep lens image processing software (“Infringing Product”) is a computer program product for generating image analysis.</p>

IMPROVED DEEP CNN (DCNN) MODELS

- We have proposed and evaluated improved DCNN models that provide better performance in CP with a minimal amount of memory and computational requirements.
- IRRCNN and DCRN models are applied for different classification tasks.
- R2U-Net model is used for Nuclei, Epithelium, and Tubule Segmentation.
- A new R2U-Net based regression model named “UD-Net” for Lymphocyte detection.

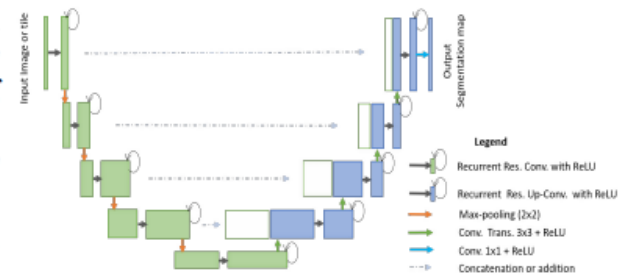


Figure 1. R2U-Net models with encoding and decoding units.

Source: PDF

Artificial Intelligence

Deep Lens is creating proprietary technology in computer vision across multiple cancer types to assist in visual analysis (i.e., AI and Deep Learning). AI has been available in other medical imaging spaces such as radiology for 20+ years because the complexity of diagnosis is much less varied than it is with pathology.

Dealing in multiple levels of magnification, multiple colors, multiple dimensional planes and requiring hundreds of visual cues that indicate disease or lack of disease is taxing on a person or a machine and requires significant horsepower.

Therefore the algorithms and compute power required to interpret them is much more intensive for pathology.

Our AI team, using the next generation of convolutional neural networks (CNNs) is adding features to our proven pathologist-developed workflow solution across dozens of cancer types and will make cell counting, IHC quantification (Ki67, PD-1, etc.), mitotic index counts, TIL counts and many more critical (but tedious) tasks instantaneous allowing the pathologist to focus on the nuanced work that they are trained to do and avoid error prone and time consuming work fit for a machine.

<https://www.deeplens.ai/ai-for-digital-pathology>

The Infringing Product generates an algorithm based on user manual annotation of objects of interest thereby training the algorithm.

obtaining a product algorithm for analysis of a first set of image data wherein said product algorithm is configured to recognize at least one entity within said first set of image data via a training mode that utilizes iterative input to an evolving algorithm obtained from at least one first user, wherein said training mode comprises:

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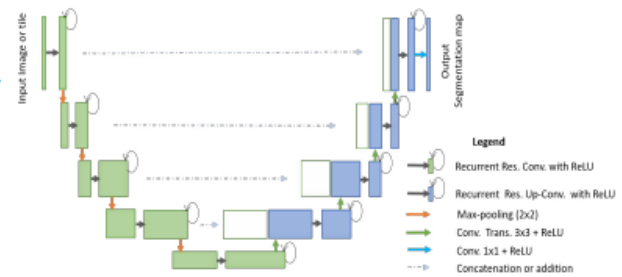


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The Infringing Product generates and executes algorithm based on user manual annotation of objects of interest thereby training the algorithm.

storing said evolving algorithm as a product algorithm;
providing said product algorithm to at least one second user so that said at least one second user can apply said product algorithm against a second set of image data having said at least one entity.

Deep Lens VIPER

We have also been training our system to help pathologists by classifying and identifying difficult tumors with accuracy at levels much higher than any of our peers in machine vision oncology. These methods will be integrated to Deep Lens VIPER in early 2019 and are set to transform pathology, oncology and drug development - the entire cancer industry, as together we search for a cure.

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The Infringing Product stores the evolving algorithm and runs the stored algorithm on all the data to automatically classify additional images.